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**IDENTIFICATION OF ROAD DEFECTS,
CAUSES OF ROAD DETERIORATION AND
RELATIONSHIP AMONG THEM FOR
BITUMEN PENETRATION MACADAM
ROADS IN SRI LANKA**

BY

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 Thesis submitted to the Department of Civil Engineering of
the University of Moratuwa in Partial Fulfillment of the
requirement for the Degree of Master of Science

Supervised by

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Dedication

To My Mother & Father

For their continuous dedication and encouragement for all the endeavors towards my advancement.

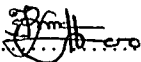


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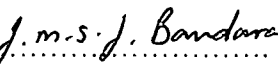
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Declaration

This thesis is a report on the research work carried out in the Department of Civil engineering, University of Moratuwa, Sri Lanka, during January 2003 to August 2004. This submission is original and does not have any materials previously published or written by any others anywhere, except where citing is made

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Abstract

The study was particularly concentrated on identifying the causes of road deterioration, road defects and determining the most important parameters which could be used to predict the rate of deterioration particularly in Bitumen penetration macadam roads.

A comprehensive literature review was conducted with literature related to both local and international context to determine the road deterioration factors, road defects, rate of deteriorationetc both locally and foreign countries. Moreover, the literature review was accompanied with the road condition surveys where sophisticated equipments were used in developed countries while manual data collection methods were used in developing countries like ours.

In achieving the above objectives, a suitable surface condition survey form was developed. Surface condition survey form was accompanied with road surface information, road geometry, sand sealing history and road deformations. Traffic data and sand sealing history were obtained from Provincial Road Development Authority (PRDA) and the rest was obtained by field observations. Data collection was carried out in selected Bitumen penetration macadam roads for about nine months.

Cracks, potholes, edge defects, depressions, corrugations are the significant road defects observed in the field. Traffic, age, road geometry, weather, drainage, construction quality as well construction material, maintenance policy play the major role as road deteriorate agents.

Potholes and cracks were mainly considered in the field observations of road deformations. The data was analysed by using the statistical softwares SPSS and SAS. Category data was used for data analysis and statistical tests were carried out to check the significance of the road deterioration agents. It was found that both potholes and cracks were having significant relationship with age as well as traffic.

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